

Remarks

The Office Action dated August 18, 2009 has been carefully considered. Claims 1, 11, and 18 have been amended without addition of new matter. Claim 28 has been newly added without addition of new matter. Claim 7 has been changed from withdrawn to cancelled without prejudice and with the right to file a divisional application for it. Reconsideration of the Claims in light of the below arguments is respectfully requested.

Claim Rejections – 35 USC § 102

In Paragraph 1 of the Office Action, claims 1-6, 8-11, 18-20, 23, 24, 26, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al. (US 7,173,086 B2). Applicants respectfully traverse this rejection. Smith et al. was filed October 31, 2003. Smith et al. does not claim priority to any earlier filed U.S. or foreign application. The present application was filed January 24, 2006. It claims priority to DE 103 34 286.9 filed July 25, 2003; a certified copy of which was filed with the USPTO via Express Mail on February 20, 2009. As such, Applicants respectfully submit Smith et al. is not prior art and requests the examiner withdraw the rejection of claims 1-6, 8-11, 18-20, 23, 24, 26, and 27.

In Paragraph 5 of the Office Action, claims 1-6, 8-11, 18-20, 23, 24, 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al. (US 7,173,086 B2) with further evidence provided by Chem Crete. Applicants respectfully traverse this rejection. Smith et al. was filed October 31, 2003. Smith et al. does not claim priority to any earlier filed U.S. or foreign application. The present application was filed January 24, 2006. It claims priority to DE 103 34 286.9 filed July 25, 2003; a certified copy of which was filed with the USPTO via Express Mail on February 20, 2009. As such, Applicants respectfully submit Smith et al. is not prior art and requests the examiner withdraw the rejection of claims 1-6, 8-11, 18-20, 23, 24, 26, and 27.

Claim Rejections – 35 USC § 103

In Paragraph 9 of the Office Action, claims 1-6, 8-11, 18-20, 23, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukaida et al. (EP 0 612 533 A1 or US 5,672,419) in view of Sun et al. (US 6,124,391). Applicants have amended claim 1 and claim 18 without the addition of new matter. Applicants respectfully submit the claims are in condition for allowance and request the examiner withdraw the rejection of claims 1-6, 8-11, 18-20, 23, 24, 26, and 27.

Mukaida et al. discloses a water absorbent composition comprising water-absorbing polymer particles and 0.5 to 30 parts of a resin powder having heat adhesion property at 50-200°C wherein the water absorbent composition binds to a fibrous material, exemplified as cellulose-type fibers, organic synthetic fibers, and mixtures thereof. Col. 2, ll. 55-67. Mukaida et al. also discloses that organic and inorganic powders can be added to the water absorbing material that is adhered to fibers. Col. 8, ll. 12-18. However, Mukaida et al. does not disclose the use of a resin powder at less than 0.5% by weight of the polymer as recited in the amended claim 1. Applicants therefore respectfully submit Mukaida et al. does not disclose, directly or indirectly, nor make obvious the elements of the present invention.

Sun et al. does not cure the deficiencies of Mukaida et al. Sun et al. discloses a mixture of SAP particles and inorganic powder as set forth in paragraph 12 of the Office Action. Sun et al. does not disclose, directly or indirectly, nor make obvious, the use of less than 0.1% by weight of the polymer of resin powder. Neither Mukaida et al. or Sun et al., alone or in combination, teach, disclose, or suggest, directly or indirectly, the elements of the present application. In light of the above arguments and amendments, Applicants respectfully request the examiner withdraw the rejection of claims 1-6, 8-11, 18-20, 23, 24, 26 and 27.

In Paragraph 18 of the Office Action, claims 1-5, 8-11, 18, 19, 23, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball (WO 91/18042 A1) in view of Sun et al. (US 6,124,391). Applicants have amended claim 1 and claim 18 without the addition

of new matter. Applicants respectfully request the examiner withdraw the rejection of claims 1-5, 8-11, 18, 19, 23, 24, 26 and 27.

Ball is directed to adhesive SAP particles by blending the SAP particles with a hydrophilic thermoplastic resin until mixture no longer flows freely, and, optionally, adding to the mixture a flow control additive, and blending the mixture until the mixture flows freely. As in Mukaida et al., Ball is directed to adding enough hydrophilic thermoplastic resin adhesive to bind the SAP particles to the fibers. Ball discloses using at least one part of thermoplastic polymer per hundred parts of water-absorbent resin and twenty parts by weight or less of thermoplastic polymer per hundred parts of water-absorbent resin. Col. 13, ll. 9-17. Although these limits are stated separately, they still are the upper and lower limits disclosed in Ball as the amount of thermoplastic polymer in the composition. Using 1% or more of a thermoplastic polymer in the present invention would make the present invention inoperable. *See Affidavits of Dr. Smith and Dr. McIntosh as previously filed, copies of which are attached for ease of reference as Appendices A and B, respectively.* Even if the actual amount of thermoplastic polymer is less than 1% of the total composition, it would not be so by a factor of ten as recited in amended claim 1.

Ball does not teach or disclose, directly or indirectly, the use of 0.1% of thermoplastic polymer. Sun et al. cannot cure this deficiency of Ball et al. Neither Ball nor Sun et al., alone or in combination, teach, disclose, or suggest, directly or indirectly, the elements of the present invention. In light of the above and the amendments to the claims, the Applicants respectfully request the rejection of claims 1-5, 8-11, 18, 19, 23, 24, 26, and 27 be withdrawn.

In Paragraph 24 of the Office Action, claims 1-6, 8, 11, 18-20, 23, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisfeld et al (DE 100 26 861 A1) in view of Sun et al. (US 6,124,391). Applicants have amended claim 1 and claim 18 without the addition of new matter. Applicants respectfully submit the claims are in condition for allowance and request the examiner withdraw the rejection of claims 1-6, 8, 11, 18-20, 23, 24, 26 and 27.

Eisfeld et al. is directed to adhesive SAP particles by blending the SAP particles with a thermoplastic resin wherein the adhesive particles include from 1 to 15% thermoplastic adhesive. Eisfeld et al. does not disclose or suggest adding particle fines to the adhesive SAP particles. As in Mukaida et al. and in Ball, Eisfeld et al. is directed to adding enough thermoplastic resin adhesive to bind the SAP particles to the fibers.

Eisfeld et al. does not disclose the use of less than 0.5% thermoplastic adhesive as recited in amended claim 1. Sun et al. does not cure this deficiency. Neither Eisfeld et al. nor Sun et al., alone or in combination, teach, disclose, or suggest all of the elements in the present application. In light of the above arguments and the amendments to the claims, Applicants respectfully request the examiner withdraw the rejection of claims 1-6, 8, 11, 18-20, 23, 24, 26, and 27.

In Paragraph 31 of the Office Action, claims 1-4, 8-11, 18-20, 23, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhardt et al. (US 5,840,321) in view of Sun et al. (US 6,124,391). Applicants have amended claim 1 and claim 18 without the addition of new matter. Applicants respectfully request the examiner withdraw the rejection of claims 1-4, 8-11, 18-20, 23, 24, and 26.

Engelhardt et al. discloses the use of non-reactive, water-insoluble waxes to coat hydrogel particles with a porous wax surface which has no adverse effect on the absorption properties of the hydrogel. Col. 3, ll. 8-29. Engelhardt et al. does not disclose thermoplastic adhesives. Although the properties of the thermoplastic adhesives disclosed in the pending application and the waxes disclosed in Engelhardt et al. are similar, they are not the same material as exemplified in paragraphs [0079] – [0080] of the pending application.

[0079] Besides the already mentioned components, a thermoplastic adhesive, comprising part of the powdery water-absorbing polymers according to an embodiment of the present invention, can additionally comprise at least one wax. A "wax," in embodiments of the present invention, is understood as a water-insoluble compound or a mixture of two or more of such compounds with a melting point of about 90°C. to about 165°C. Suitable waxes include, for example, paraffin waxes, polyethylene waxes, polypropylene waxes, montan waxes, Fischer-Tropsch waxes, microcrystalline waxes, or carnauba waxes.

[0080] Waxes of this type can be present in a thermoplastic adhesive, as can be used in embodiment of the present invention, in a quantity of up to about 60 wt. % in one aspect, in another aspect up to about 70 wt. %, and in yet another aspect up to about 80 wt. %, based on the thermoplastic adhesive, for example in a quantity of about 5 wt. % to about 60 wt. %. If compounds are used in embodiments of the present invention as thermoplastic adhesives, which are obtainable from the polymerization of alpha-olefins, the portion of waxes in melt adhesives of this type amounts to at least about 5 wt. % in one aspect or at least about 10 wt. % in another aspect.

As can be seen above, waxes are specifically distinguished from thermoplastic adhesives. Therefore, Engelhardt et al. does not disclose or suggest the use of thermoplastic adhesives, but instead a separate material: wax.

Additionally, Engelhardt et al. teaches that the surface of the hydrogel is “coated with the quantified [sic] of wax according to the invention has pores of sufficient size and sufficient number.” Col. 3, ll. 21-25. The present invention discloses in several places that the thermoplastic adhesives used may be of the type “used commonly in the production of thermoplastic formed bodies, in particular of films, or for thermoplastic coating of surfaces.” See paragraphs [0056], [0057].

Engelhardt et al. does not disclose the use of 0.1% or less of thermoplastic adhesive as recited in amended claim 1. Sun et al. does not cure this deficiency. Neither Engelhardt et al. nor Sun et al., alone or in combination, teach, disclose, or suggest all of the elements in the present application. In light of the above arguments and the amendments to the claims, Applicants respectfully request the examiner withdraw the rejection of claims 1-4, 8-11, 18-20, 23, 24, and 26.

Double Patenting

In Paragraph 37 of the Office Action, claims 1-4, 8-11, 18-20, 23, 24, and 26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 11, and 24 of U.S. Patent No. 7,173,086 B2. Applicants request this rejection be held in abeyance until allowable subject matter is identified.

Conclusion

In light of the remarks and amendments to the claims presented herein, Applicants submit that the present application is in condition for allowance, and such action is respectfully requested. If, however, any issues remain unresolved, the Examiner is invited to telephone Applicants' counsel at the number provided below.

Respectfully submitted,

/Philip P. McCann/

Philip P. McCann
Registration No. 30,919

SMITH MOORE LEATHERWOOD LLP
P.O. Box 21927
Greensboro, NC 27420
(336) 378-5302
phil.mccann@smithmoorelaw.com

Date: November 17, 2009

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APPENDIX A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Frank LOEKER *et al.*
Serial No.: 10/565,770
Filed: September 20, 2006
Confirmation No.: 2986

Examiner: DOLLINGER, Michael M.
Art Unit: 1796

For: **POWDERY WATER-ABSORBING POLYMERS WITH FINE
PARTICLES BOUND BY THERMOPLASTIC ADHESIVES**

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Alexandria, VA 22313-1450

AFFIDAVIT UNDER 37 C.F.R. 1.132

I am Scott Smith, Director of Platform Research, Consumer Specialties, Evonik Stockhausen Inc. I hold a PhD in Organic Chemistry from The University of Cincinnati and specialized in the field of organic synthesis. I started working in the field of superabsorbent polymers in 1989 and continued working in this field to the present. I was employed by Nalco Chemical Company in Naperville, IL from December 1987 to December 1997. My position progressed from Senior Chemist to Group Leader, then Technical Director of Absorbent Chemicals. Since January 1998 I have been employed by Evonik Stockhausen Inc. in Greensboro, NC. My current position is Director of Platform Research, Consumer Specialties.

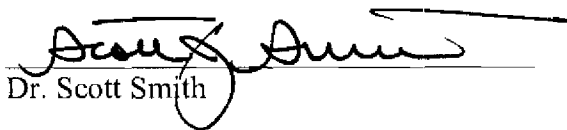
1. I am an inventor of numerous US patents and patent applications directed to superabsorbent polymers including US 5,314,420; US 5,399,591; US 5,451,613; US 5,462,972; US 6,906,131; US 2003/0207958; US 2004/0214499; US 2004/0214946; US 2004/0220350; US 2005/0020771; US 2005/0080182; 2005/0090586; US 2005/0096435; and corresponding foreign patents and patent applications.

2. I am an inventor of the current claims of the present invention, patent application 10/565,770. The current claims are directed to treated water-absorbing polymer particles consisting of a powdery water-absorbing polymer comprising 0.01 to about 20% of a fine particles having a particle size of less than about 200 μ m, about 0.001 to less than 1% of a thermoplastic adhesive; and water-absorbing polymer particle with a particle size of more than about 200 μ m wherein the fine particles are bound to the surface of the water-absorbing polymer particles by the thermoplastic adhesive and the treated water-absorbing polymer particles have either a flow value (FFC) of from about 1 to about 13, or a dust portion of up to about 6. The treated particles of the present invention involve using a small amount of thermoplastic adhesive to bind the fine particles to the surface of water-absorbing polymer particles during the making of the treated superabsorbent particles. This results in treated particles that can flow smoothly and are not dusty.
3. I have reviewed and analyzed the references cited in the January 22, 2009 Office Action including Mukaida et al (EP 0 612 533 A1 or US 5,672,419; Sun et al (US 6,124,391); Ball (WO 91/18042 A1); and the machine translation of Einfeld et al (DE 100 26 861 A1) in view of the statements in the Office Action, alleging that the product of Mukaida et al , or Ball, or Einfeld in view of Sun would make the current claims obvious. I disagree that the product of Mukaida et al , or Ball, or Einfeld in view of Sun would make the product of the current claims or make the product of the current claims obvious.
4. Mukaida et al , and Ball, and Einfeld are directed to SAP particles coated with a thermoplastic adhesive for bonding such SAP particles to fibers. None of these

references disclose or suggest binding fine particles to the thermoplastic adhesive coated SAP particles. Sun et al discloses a mixture of SAP particles and inorganic powder, but does not disclose binding the inorganic powder to the SAP particles with a thermoplastic adhesive. In fact, using the small amount of thermoplastic adhesive as set forth in the current claims would make the bonding of SAP particles to fibers inoperable.

5. The examples in the present application show that only a small amount of thermoplastic adhesive is used in binding the fine particles to the SAP particles. In particular, Table 2 shows the Quantity of Thermoplastic adhesive to be 0.3wt% and Table 3 shows the Quantity of Thermoplastic adhesive to be 0.5wt%. Using the amounts of thermoplastic adhesive suggested by Mukaida et al , or Ball, or Eisfeld in the present invention would result in the SAP particles sticking together into a large mass, which cannot be processed, and, hence, inoperable.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001; and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.


Dr. Scott Smith

4/20/09
Date

APPENDIX B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Frank LOEKER *et al.*

Examiner: DOLLINGER, Michael M.

Serial No.: 10/565,770

Art Unit: 1796

Filed: September 20, 2006

Confirmation No.: 2986

For: **POWDERY WATER-ABSORBING POLYMERS WITH FINE
PARTICLES BOUND BY THERMOPLASTIC ADHESIVES**

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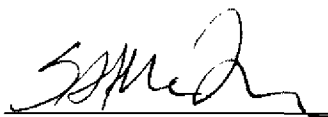
AFFIDAVIT UNDER 37 C.F.R. 1.132

I am Stan McIntosh. I hold a BS in Textile Chemistry from North Carolina State University, and a PhD in Fiber and Polymer Science from North Carolina State University, with a specialization in the area of Polymer Chemistry. Upon completion of my PhD in 1990, I joined BASF located in Asheville, NC as a Research Chemist and started working in the field of polyamide extrusion and additives for polyamides. I was technical director for the Organic Pigments Corporation from 2000 to 2003, overseeing coloration products for printing, agricultural, and textile industries. Since May 19, 2003, I have been employed as a Research Scientist by Evonik Stockhausen Inc. located in Greensboro, NC.

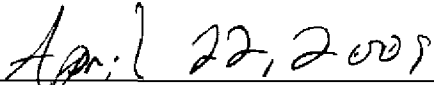
I have conducted experiments of thermoplastic adhesive coated superabsorbent polymer particles using the thermoplastic adhesive polymer maleated polypropylene and found that, when superabsorbent polymer particles are coated with 1% maleated polypropylene, the particles are not processible to make the final product. In the heated reactor necessary to effect surface-crosslinking, the thermoplastic adhesive coated superabsorbent polymer particles stick together

in a mass, not particles, and cannot flow through the reactor as particles. As a result, the mass cannot be processed due to the particles sticking together. In addition, 1% polyester coated superabsorbent polymer particles cannot be processed through a paddle dryer due to the tack of the thermoplastic coating on the particles.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001; and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Dr. Stan McIntosh



Date